Chapter XII

TRANSPORTATION PLAN

INTRODUCTION

Development of Waukesha County in accordance with the recommended County land use plan through the year 2010 and beyond will require major improvements to the County transportation system. This chapter presents an arterial street and highway system plan and a public transit system plan intended to serve the County through the year 2010. This chapter also describes additional functional improvements to the arterial street system and additional public transit services which may be expected to be required to serve the County under full development of the recommended County land use plan, conditions not likely to be achieved earlier than about the year 2050. Government agency responsibilities for implementation of the arterial street and highway and public transit system plans are identified in the last section of this chapter.

ARTERIAL STREETS AND HIGHWAYS

Arterial streets and highways are intended to facilitate the movement of traffic traveling through Waukesha County, traveling between the County and areas outside of the County, and traveling between subareas of the County. Growth and development in the County through the year 2010 and beyond will require substantial expansion of, and improvements to, the existing arterial street and highway system if these facilities are to operate within their design capacity. The needed expansion and improvement of the arterial street and highway system is addressed in this chapter.

It should be noted that growth and development will also result in major expansion of the land-access and collector street systems within the County. Such expansion, however, usually occurs as an integral part of the urban land use development process; the attendant capital costs are incurred by land developers and included by those developers in the price of finished building sites. The maintenance costs of the land-access and collector streets, however, are borne by the local municipalities concerned; although very substantial, they are not addressed in this county-level plan. Under the 2010 stage of the County land use plan, about 59 square miles of the County would be converted from agricultural to urban uses, entailing the construction of about 542 miles of new land-access and collector streets. Under the full development of the County land use plan, about 47 additional square miles of the County would be converted from agricultural to urban uses and about 26 additional square miles would be converted from agricultural to rural residential use, entailing the construction of about an additional 654 miles of new land-access and collector streets. At an average annual routine maintenance cost, including crack-sealing, sweeping, and snow and ice control, of $8,200 per mile for streets with an urban cross-section with curb and gutter and storm sewerage and of $4,000 per mile for those with a rural cross-section with roadside swales, the incremental maintenance costs for the additional land-access and collector streets may be expected to approximate $3.7 million per year under the year 2010 stage of the County land use plan and $8.1 million per year under planned full build-out conditions.

Year 2010 Arterial Street and Highway System Plan

The arterial street and highway system plan presented here is that recommended for Waukesha County in the year 2010 regional transportation system plan, the plan adopted by the Waukesha County Board of Supervisors on June 15, 1995, and reaffirmed in the second-generation jurisdictional highway system plan for Waukesha County adopted by the County Board on July 25, 1995.[1] The proposed arterial street system was designed to serve the adopted regional land use plan for the year 2010 and would adequately serve and support the pattern of urban land uses in the County envisioned under the year 2010 stage of the County land use plan presented in Chapter X of this report, as more specifically described later in this section.

The methodology used in the design of the plan was explicitly structured to ensure that, before any proposal was brought forward to widen existing arterial streets and highways or to build new

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[1] *See SEWRPC Planning Report No. 41, A Regional Transportation System Plan for Southeastern Wisconsin: 2010, December 1994, and Amendment to the Waukesha County Jurisdictional Highway System Plan—2010, May 1995.*

arterial streets and highways, full and adequate consideration be given to resolving existing and anticipated future traffic congestion and safety problems through demand management, traffic management, and public transit service measures. This approach has long been followed in Regional Planning Commission transportation planning efforts and is, moveover, consistent with the planning approach envisioned under the Federal Intermodal Surface Transportation Efficiency Act of 1991.

The adopted year 2010 regional arterial street and highway system plan as it pertains to Waukesha County is shown on Map 94. The plan envisions that the arterial street and highway system serving the County will consist of 774 center-line miles of arterial facilities by the year 2010. This represents an increase of 58 center-line miles over the arterial system as it existed in 1991 and includes 26 miles of new facilities proposed to be constructed under the plan and 32 miles of existing land-access and collector streets anticipated and planned to be converted to arterial facilities by the year 2010. The plan includes recommendations for the functional improvements to the arterial system and recommendations with respect to jurisdictional responsibilities for that system.

Of the proposed 774-mile system, 26 miles would be constructed as entirely new facilities and 134 miles of existing facilities would be widened to provide additional travel lanes (see Table 145). The rest of the proposed system, 614 miles, consists of existing facilities which would be preserved, through resurfacing or reconstruction, as appropriate. The specific segments of the system proposed for new construction or widening are identified on Map 66 in Chapter VI of this report.

Thus, under the plan, the capacity of the arterial street system in the County would be expanded through widening or new construction by a total of 160 miles, an approximately 21 percent expansion of the capacity of the 774-mile County arterial street system. Substantial capacity expansion is recommended in the urbanized eastern one-half of the County, particularly with respect to north-south routes, including N. 124th Street, Moorland Road and Pilgrim Road, Calhoun Road, Barker Road and Johnson Road and Racine Avenue, STH 164, CTH J, CTH T, and the western Waukesha bypass.

Map 94 also shows the recommended jurisdictional responsibility for each segment of the proposed arterial street and highway system. Under the year 2010 plan, State trunk highways would account for about 230 miles, or 30 percent of the total system mileage within the County; County trunk highways would account for about 413 miles, or 53 percent; and local trunk highways would account for about 131 miles, or 17 percent.

Table 145

PLANNED ARTERIAL MILEAGE IN WAUKESHA COUNTY UNDER THE RECOMMENDED YEAR 2010 ARTERIAL STREET AND HIGHWAY SYSTEM PLAN

Item	Planned Arterial Mileage: 2010			
	State	County	Local	Total
Preservation	163.8	328.1	122.0	613.9
Improvement[a]	57.3	75.0	1.8	134.1
Expansion[b]	9.1	9.7	7.4	26.2
Total	230.2	412.8	131.2	774.2

[a] *Widening to provide additional traffic lanes on existing streets.*

[b] *Construction of new facilities.*

Source: SEWRPC.

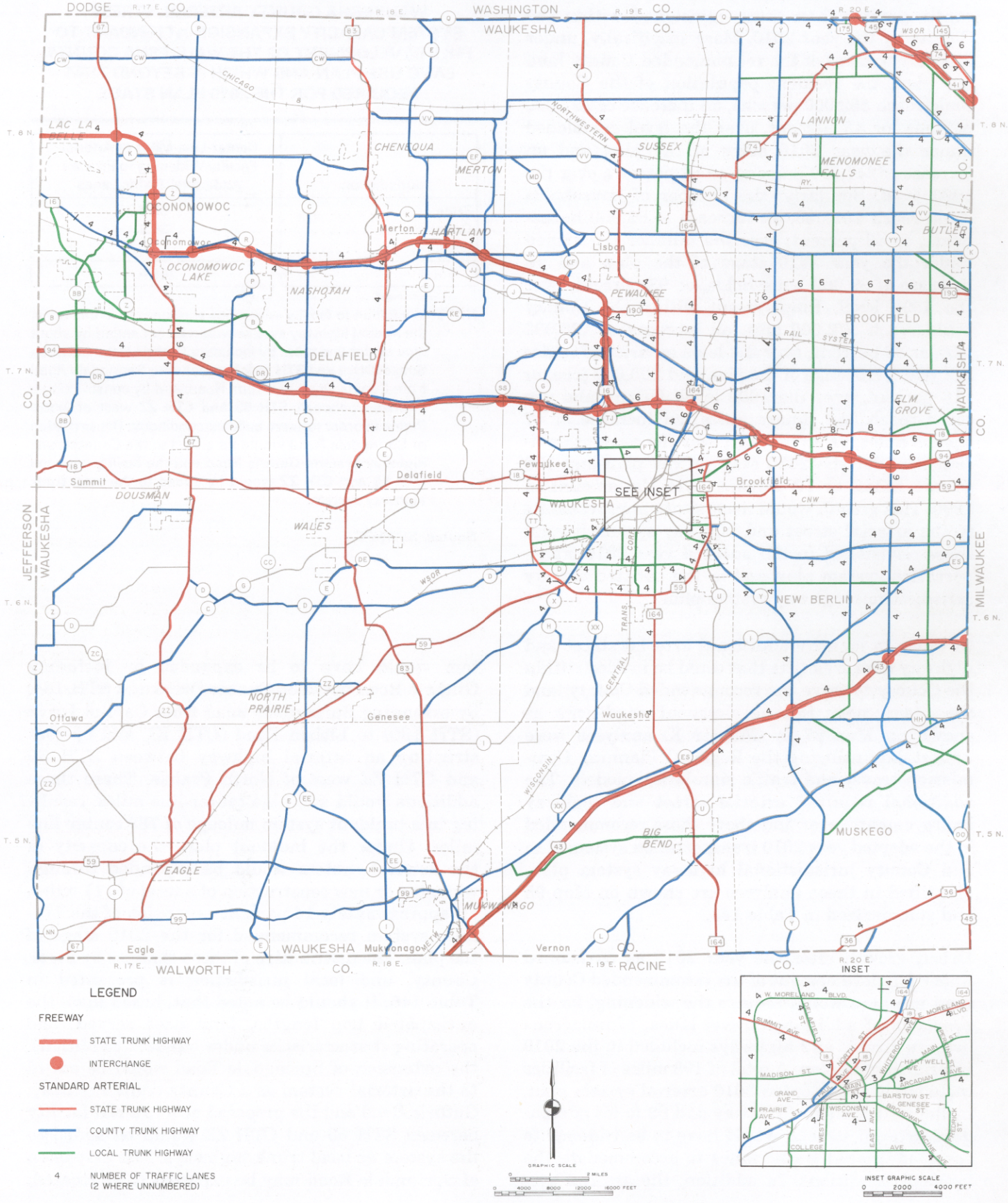
The estimated capital cost of the recommended system to the year 2010, including right-of-way acquisition, is $694 million in 1994 dollars. The total estimated capital cost includes $422 million to preserve the existing and planned arterial system and $272 million to implement the recommended capacity improvement and expansion. Of the $272 million cost of arterial capacity improvement and expansion, an estimated $163 million would address existing traffic congestion and $109 million would be attendant to addressing potential future traffic congestion. The estimated costs of arterial system preservation were based upon the assumption that a typical arterial facility would have an average service life of 50 years prior to requiring complete reconstruction and would require resurfacing about once every 15 years. The State trunk highway system represents $393 million, or 57 percent of the total capital cost; the County trunk highway system, $243 million, or 35 percent; and the local trunk system, $58 million, or 8 percent. The estimated average annual maintenance cost on the arterial street system, also expressed in 1994 dollars, approximates $12.7 million, including $5.6 million on the State trunk highway system, and $7.1 million on the County and local trunk highway system.

Buildout Arterial Street and Highway System Plan

Full development of the recommended County land use plan, as shown on Map 87 in Chapter X, would

Map 94

RECOMMENDED FUNCTIONAL AND JURISDICTIONAL ARTERIAL STREET AND HIGHWAY SYSTEM PLAN FOR WAUKESHA COUNTY: 2010



LEGEND

FREEWAY

STATE TRUNK HIGHWAY

INTERCHANGE

STANDARD ARTERIAL

STATE TRUNK HIGHWAY

COUNTY TRUNK HIGHWAY

LOCAL TRUNK HIGHWAY

4 NUMBER OF TRAFFIC LANES (2 WHERE UNNUMBERED)

Source: SEWRPC.

result in population, household, and employment levels and in urban land use development significantly greater than those envisioned within the County by the year 2010. More specifically, under full development of the recommended County land use plan, the resident population of the County could reach 552,000 persons, an increase of 167,000 persons, or 43 percent, over the level envisioned under the year 2010 stage of the plan and an increase of 247,000 persons, or 81 percent, over the 1990 level. Similarly, the number of households could reach 205,000, an increase of 62,000 households, or 43 percent, over the number envisioned under the year 2010 stage of the plan and an increase of 99,000 households, or 93 percent, over the 1990 level. Employment within the County could reach 372,000 jobs, an increase of 123,000 jobs, or 49 percent, over the level envisioned under the year 2010 stage of the plan and 200,000 jobs, or 116 percent, over the 1990 level. Urban land use could reach 254 square miles, an increase of 47 square miles, or 23 percent, over the amount envisioned under the 2010 stage of the plan and 106 square miles, or 72 percent, over the amount in 1990. This growth would necessitate improvements to the arterial street and highway system beyond those envisioned in the adopted year 2010 transportation system plan and in the adopted County jurisdictional highway system plan.

In order to identify additional arterial street and highway improvements that could be needed within the County to serve the recommended County land use plan under full development conditions as shown on Map 87 in Chapter X, analyses were undertaken utilizing the Regional Planning Commission travel and traffic simulation models. The additional required arterial street and highway improvements, over and above those recommended in the adopted year 2010 transportation system plan and County jurisdictional highway system plan, identified in these analyses are shown on Map 95 and summarized in Table 146.

Urban growth after the year 2010 as envisioned under full development of the recommended County land use plan would require the widening, for the provision of additional travel lanes, of numerous arterial streets and highways included in the 2010 arterial system plan. A total of 108 miles of facilities included in the adopted 2010 arterial system plan, including 16 miles of freeway and 92 miles of standard arterial streets, would have to be widened to carry additional traffic lanes to accommodate the buildout conditions. In addition, the arterial system would have to be expanded by including Guthrie Road between Sunset Drive and STH 164, by extending Springdale Road from Capitol Drive (STH 190) to Lisbon Road (CTH K), and by constructing an arterial highway between STH 59 and CTH ZZ west of North Prairie. These three additions would add nine center-line miles, resulting in a buildout system mileage of 783 center-line miles. Under the buildout plan, the capacity of the arterial system would be expanded through widening or new construction of a total of 111 miles, an approximately 14 percent expansion of the 774-mile system recommended for the 2010 stage of the plan. The distribution of these changes by State, County, and local jurisdiction is presented in Table 146. It should be noted that, based upon the anticipated trip lengths, land uses served, and operating characteristics under buildout conditions, the extension of Springdale Road would be added to the arterial system as a County trunk highway; Guthrie Road and the proposed new arterial facility between STH 59 and CTH ZZ would be added to the system as local trunk highways. The extension of Springdale Road may be expected to be located,

Table 146

WAUKESHA COUNTY ARTERIAL STREET SYSTEM CAPACITY EXPANSION ATTENDANT TO FULL DEVELOPMENT OF THE WAUKESHA COUNTY LAND USE PLAN AND WHICH IS BEYOND THAT REQUIRED FOR THE 2010 PLAN STAGE

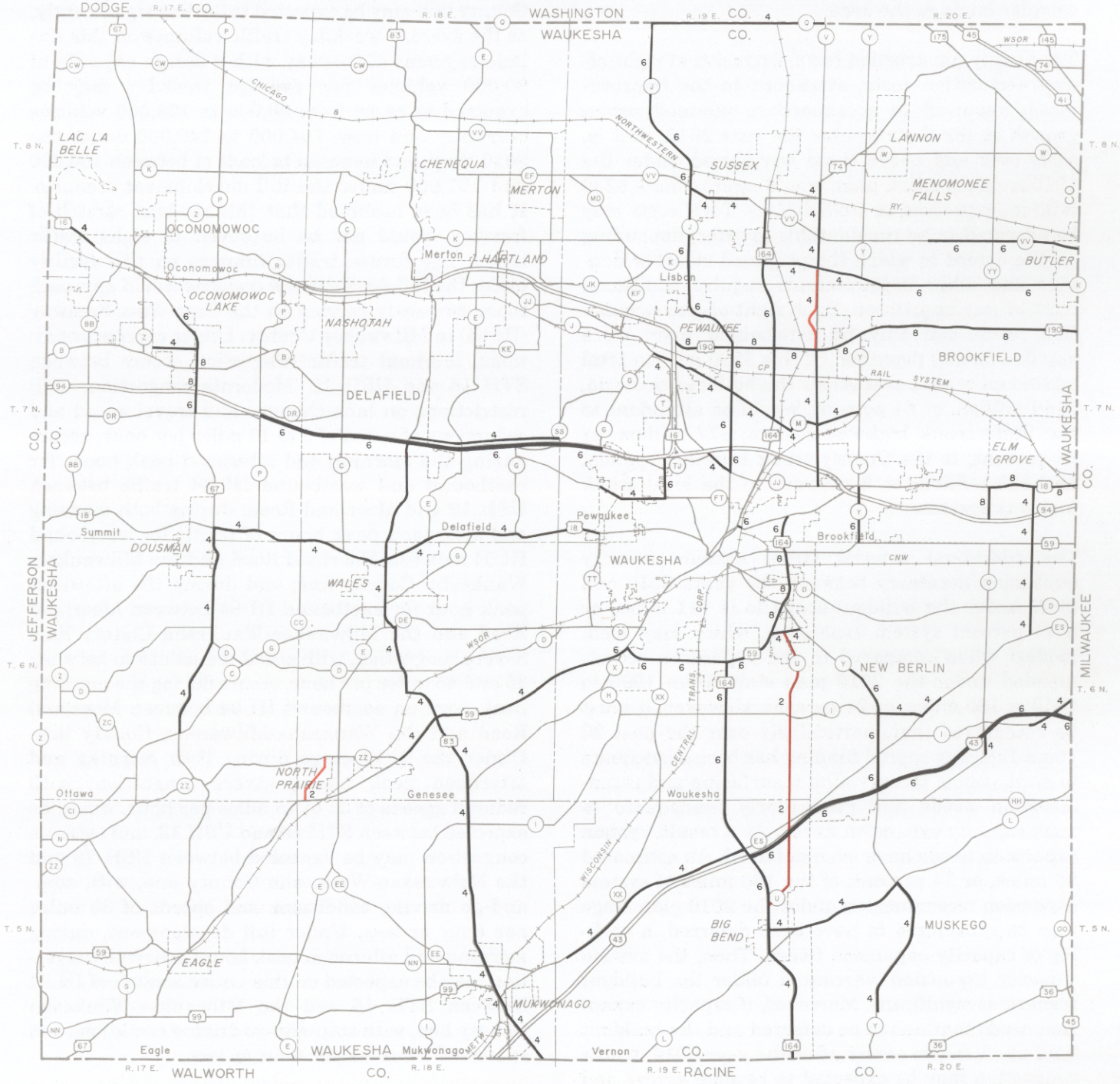
Jurisdiction	Center-Line Miles of Arterial Facility Widening to Provide Additional Traffic Lanes
State	66.6
County	36.9
Local	4.9
Total	108.4

NOTE: In addition to facility widenings summarized in this table, the arterial highway system would be expanded by about nine center-line miles by including Guthrie Road between Sunset Drive and STH 164; by extending Springdale Road from Capitol Drive to Lisbon Road; and by constructing a highway between STH 59 and CTH ZZ west of North Prairie in order to serve buildout conditions. The extension of Springdale Road would be added to the County trunk highway system; Guthrie Road and the facility between STH 59 and CTH ZZ would be added to the local trunk highway system.

Source: SEWRPC.

Map 95

CHANGES TO THE YEAR 2010 ARTERIAL STREET AND HIGHWAY SYSTEM PLAN NEEDED TO ACCOMMODATE DEVELOPMENT CONDITIONS ENVISIONED UNDER THE BUILDOUT LAND USE PLAN FOR WAUKESHA COUNTY



LEGEND

- REQUIRED ADDITION TO THE YEAR 2010 ARTERIAL SYSTEM TO ACCOMMODATE BUILDOUT CONDITIONS
- REQUIRED WIDENING OF ARTERIAL STREET OR HIGHWAY INCLUDED IN THE YEAR 2010 SYSTEM TO ACCOMMODATE BUILDOUT CONDITIONS
- 6 NUMBER OF LANES ON FACILITIES REQUIRED TO BE WIDENED

Source: SEWRPC.

as shown on Map 95, on an indirect alignment to avoid conflict with the planned extension of the primary runway of Capitol Airport and to minimize the impacts on wetlands and primary environmental corridor lands in the area.

The facility construction costs, exclusive of right-of-way acquisition costs, attendant to the improvements required to accommodate planned urban growth in the County after the year 2010, that is, costs over and above those envisioned under the 2010 transportation plan, would approximate $230 million, expressed in 1995 dollars. Total costs may be expected to be considerably greater, depending on the extent to which the proposed street widenings and other improvements require additional right-of-way acquisition. Such right-of-way acquisition needs can only be determined upon more detailed facility planning. Of this $230 million total additional capital cost under the buildout scenario, $140 million, or 61 percent, would be attendant to the State trunk highway system; $77 million, or 33 percent, to the County trunk highway system; and $13 million, or 6 percent, to the local trunk highway system.

The additional arterial street system capacity expansion necessary between the years 2010 and 2050 under the buildout scenario is 111 miles, or a 14 percent system expansion, which may seem modest when compared to the expansion recommended under the 2010 plan stage from 1996 to 2010 of 160 miles, or 21 percent. However, it must be recognized that, particularly over the past 20 years, highway capital funding has been inadequate to meet system preservation resurfacing and reconstruction needs and particularly inadequate to meet capacity expansion needs. As a result, system expansion needs have been deferred. An estimated 86 miles, or 54 percent, of the 160 miles of system expansion recommended under the 2010 plan stage may be considered to have been deferred, a backlog of capacity expansion needs. Thus, the system capacity expansion warranted under the buildout scenario is significant. Moreover, if capacity expansion needs continue to be deferred and the buildout land use scenario occurs after the year 2010, traffic congestion may be expected to become severe and widespread throughout Waukesha County. If such deferral of needed capital investment in arterial streets and highways occurs over the 40 years from 2010 to 2050, it may be expected that almost every arterial roadway in the County will require reconstruction at an estimated total cost of $1.0 billion in 1995 dollars.

An additional disadvantage of the full development of the County land use plan is that the level of service provided by the East-West Freeway (IH 94) between STH 16 and the Waukesha-Milwaukee County line may be expected to decline significantly, as the average weekday traffic volumes on this six-lane segment of freeway with a design capacity of 90,000 vehicles per average weekday may be expected to carry from 86,000 to 128,000 vehicles currently and from 104,000 to 140,000 under the 2010 stage and increase to loads of between 150,000 and 167,000 under the full development scenario. It has been assumed that this six-lane stretch of freeway would not be improved to eight traffic lanes. The future traffic volumes on this facility under the full development scenario would approach those currently carried on the East-West Freeway (IH 94) in Milwaukee County. Under current conditions, minimal traffic congestion occurs between STH 16 and USH 18. Moderate congestion, with restrictions on lane-changes and travel speed and reductions of speed of 5 to 10 miles per hour, occurs during the morning and afternoon peak hours for eastbound and westbound IH 94 traffic between USH 18 and Moorland Road; during both morning and afternoon peak hours of traffic for westbound IH 94 between Moorland Road and the Milwaukee-Waukesha County line; and during the afternoon peak hour for eastbound IH 94 between Moorland Road and the Milwaukee-Waukesha County line. Severe congestion, with speed reductions to between 35 and 45 miles per hour, occurs during the morning peak hour on eastbound IH 94 between Moorland Road and the Waukesha-Milwaukee County line. Under the 2010 stage during both morning and afternoon peak hours, severe congestion, with reduced speeds of 35 to 45 miles per hour, would be expected between STH 16 and USH 18, and extreme congestion may be expected between USH 18 and the Milwaukee-Waukesha County line, with stop-and-go driving conditions and speeds of 30 miles per hour or less. Under full development, during morning and afternoon peak hours, extreme congestion may be expected on this entire stretch of IH 94 between STH 16 and the Milwaukee-Waukesha County line, with stop-and-go driving conditions and speeds of 30 miles per hour or less.

TRANSIT SYSTEM

Growth and development in Waukesha County envisioned under the recommended County land use plan through the year 2010 and beyond will also require an increase in the level of public transit services provided within the County. This section